Deficiencies in Current NATO Litter and the Aeromedical Patient Transport System

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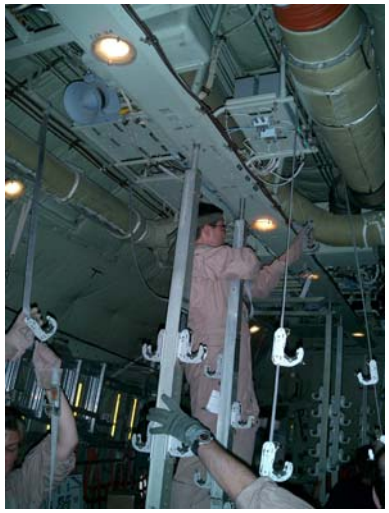
Aircraft Limitations

- C-130 and C-17 are only USAF aircraft usable. C-5 and others are not (limits capacity and flexibility of the patient movement system).
- C-130 bay requires pre-configuration with stanchions. (consumes manpower and time).
- C-17 bay requires pre-configuration with patient support pallets (PSP) (expensive and consumes manpower plus time).

C-130 stanchions



- **N**eed – A litter that can be used singularly and also serves as a building block when combining many together. This means it is “stand alone” and can be used in any transport aircraft military or civil i.e. aircraft independent. The stanchions, PSP and the support systems for them can be decommissioned.

C-17 PSP

NATO Litter Limitations

- Is aircraft dependent and, if not stacked in stanchions or on a PSP, is limited to one layer on the aircraft floor.
- Requires accessory equipment, materials and supplies. Extra bags which are heavy, bulky and awkward to store must be carried along.
- Poor platform for mounting modern medical equipment (pumps, monitors, suction devices and therapeutic devices.
- Poor platform for collecting bodily secretions in-flight (urine, blood, gastric, pulmonary, oral).
- Too narrow for many soldiers (also too short for some).
- Larger footprint than necessary on aircraft floor due to pole overhang.
- Canvass cloth allows soak through of blood and other fluids.

- Need – An aircraft independent, stackable, stand alone litter capable of containing supplies and equipment, medicines internally contained i.e. self contained.

Equipment and Supplies Limitations

- Equipment is modern but platform to employ it is pre-World War II (profoundly mismatched).
- When the equipment is mounted, knobs, buttons and plasma screens are not oriented in a logical user-friendly fashion.
- Each piece of equipment has its own unique transformer and battery (heavy, bulky and repetitive).
- The current litter, when encumbered with a critical patient and the equipment, is heavy, unbalanced, awkward to lift and awkward to maneuver.
- The equipment itself is heavy. The multiple shapes or the chasses and the accessories makes the various piece hard to pack succinctly.
- Adding equipment to upgrade the litter from a simple patient to one for a complex patient is complicated.

- Need – Equipment should be lightweight, the shapes uniform, the power derived from a common source self contained in the litter, upgrading of the litter configuration to match patient need rapid and simple. The knobs, buttons and plasma screens should be logically located and user-friendly.

Equipment Charging

Materials Storage Bags

Oxygen Equipment Limitations

- Oxygen during transport must be provided by a carry along bottle. (heavy, cumbersome)
- For hookup to the aircraft source in-flight an oxygen pressure step down and flow regulator must be set up in the aircraft pre-configuration.
- To supply emergency oxygen in-flight a separate set up is required in the pre-configuration.

- Need – A litter with oxygen storage and its regulator self contained. Storage should be in sufficient quantity to meet the regulations for aircraft emergency oxygen and usual ground transport.

Communication Limitations

Medical Crew Director coordinating patient loading.

- Communications in-flight are difficult due to the ambient high noise levels.
- This is also often true in ground operations during loading.
- Crew members must resort to yelling at each other and hand signals.
- Wireless communications are not possible due to interference with aircraft electronics.

- Need – A litter that supports viable communications system.

Logistics Limitation

- Equipment and litters are often switched as the patient moves through the system from field clinic to staging unit to aircraft to the receiving facility. This is often due to incompatibilities.

- Need – The litter and equipment should be such that the patient can be married to them at the first point of care and stay on the same litter until reaching the final receiving facility. It and the equipment should be compatible with each of the facilities and the transport vehicles (ground and air) through which the patient moves.